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Poynder on Point

No Gain Without Pain

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INFORMATION TODAY

Vol. 21 No. 10 — November 2004

As we saw last month, the open access (OA) movement has become a major force in scholarly publishing, and in the wake of recent recommendations from British and U.S. political committees seems poised to change the entire landscape of STM publishing. So how are publishers responding to OA, and can it really deliver on its promise? More importantly, can it reduce library costs?

Both the U.K. and U.S. committees have recommended that publicly funded researchers be mandated to make their papers freely available on the Web by means of open access archiving (OAA). Known colloquially as the green road to OA, this does not require the articles to be published in author-pays OA journals (the gold road), but simply that published research be made freely available on the Web, whatever publishing route is taken.

The stress on OAA has given significant traction to the self-archiving program first outlined 10 years ago by Stevan Harnad in the Subversive Proposal and has been a disappointment for OA publishers like BioMed Central (BMC) and the Public Library of Science (PLoS).

At the time of writing it is not known if the proposals will be approved, but if governments and other research funders do widely mandate self-archiving, what implications would this have for STM publishers, and what are the likely consequences for librarians and the OA movement at large?

Since publishers have historically taken a highly proprietary approach to their business, enforcing OA on them would likely be significant. Not only have they routinely acquired the copyright of papers they publish, but they have also often sought to acquire exclusivity retrospectively too—a strategy made manifest in 1969 with the so-called Ingelfinger rule. The latter formalized the practice (subsequently widely adopted by other medical journals) of refusing any manuscript if its substance had been previously submitted or reported elsewhere.

This proprietary approach sits awkwardly with the inherent openness of the Internet. When the new medium developed, therefore, publishers had two choices: They could embrace the Web's openness, or they could seek to replicate their proprietary model in cyberspace.

As researchers began exploring the potential of the Internet, many publishers were initially keen to be involved. One active participant of the seminal online debate sparked by the Subversive Proposal in 1994, for instance, was a publisher from the American Chemical Society. And as we saw last month, another publisher—Vitek Tracz—embraced the OA ethic, founding the first OA publisher, BMC.

Eberhard Hilf, former professor of theoretical physics in Oldenburg, Germany, points out that the first response of most publishers to researchers posting and organizing research on the Internet was indifference. "For years publishers viewed services like PhysNet and Math-Net as offering no threat, since the paper journals were the ones that brought them the bucks," he explains.

Indeed, when in the early 1990s, Hilf spearheaded a project aimed at linking e-print servers with database hosts, publishers, and printing services, he was courted by publishers. "In 1994 IoPP invited me to Bristol," he explains. "I also visited Elsevier, Springer, etc., and the atmosphere was good."

But as publishers began to view the embryonic OA movement as a threat to their traditional print journals, Hilf notes, they stopped talking to OA advocates "in order to hold on to what they had."

In a bid to outflank the embryonic OA movement, therefore, publishers began to migrate their closed model to the new online environment, developing powerful new electronic platforms like ScienceDirect—designed to lock research papers behind a subscription firewall.

The strategy was outlined to me in 2002 by Derk Haank, then chairman of Elsevier Science. If publishers offered new "all you can eat" electronic subscriptions to the entire corpus of their journal collections, he argued, researchers would have little inclination to surf the Web in pursuit of self-archived papers. "The way I see things developing is that more and more of our customers will have access to the whole ScienceDirect database, and they will find it much easier to use ScienceDirect than alternative methods," he explained.

The "big deal" model this gave rise to, then, posited a future in which researchers would have access to all the content a publisher possessed. As Haank put it, "The individual researcher is always part of a university or a company. As such, everyone within the institution will have access to everything. What more would they want?"

What he didn't add was the beauty of the strategy—since librarians paid the bills, services like ScienceDirect were, for researchers, free at the point of use.

For the big deal strategy to succeed, however, publishers would need to offer very substantial portfolios of electronic journals. So to achieve the necessary scale, they embarked on a period of hectic mergers and acquisitions, and today the two largest publishers—Elsevier and Springer—between them control around 40 percent of the STM journal market.

Inherent Conflict

But the larger the market share acquired by the big publishers, the more expensive became their subscriptions, and the more difficult it became for libraries to continue funding the big deal. And the more librarians struggled to pay, the greater became the rationale for OA.

Given the inherent conflict the big deal gave rise to, therefore, the OA movement eventually grew to the point where it attracted the attention of research funders. Alerted to the problem by angry librarians and articulate advocates of OA like Harnad and PLoS co-founder Harold Varmus, large funders like the Howard Hughes Medical Institute and the Wellcome Trust—along with major research organizations like the Max Planck Society—became increasingly sympathetic to OA.

One of the more significant developments occurred last year, when the U.K.-based Wellcome Trust—the world's largest private funder of medical research—commissioned a report into the STM publishing industry. This report concluded that the industry "does not operate in the long-term interests of the research community" and that "the 'public good' element of scientific work means market solutions are inefficient." Following the publication of a subsequent report last October that estimated that OA publishing "could wipe as much as 30 percent off publishing costs," the Wellcome Trust made a public commitment to OA.

By now it was also clear that, since governments fund most research, there was a powerful public interest issue at stake too. This attracted the attention of politicians and led to the U.K. and U.S. proposals.

What was significant about the U.K. inquiry was that it cast a very public spotlight on the issues, particularly accessibility to taxpayer-funded research. As the Research Councils U.K. explained to British politicians: "[T]he output from publicly funded research is handed free of charge to commercial organizations that appear increasingly to make it more difficult to gain access to publications derived from the same research."

The inquiry also highlighted the problematic attitude of publishers. When, for instance, British politicians asked publisher witnesses how they intended to enfranchise members of the public who were currently denied access, John Jarvis, managing director of Wiley Europe, startled the committee by replying dramatically: "This rather enticing statement that everybody should be able to see everything could lead to chaos ... [since there is] ... a lot of information in the world which most of us need help with."

By the time the inquiry was finished, publishers had been cast in the role of self-elected (and self-seeking) gatekeepers to public knowledge—gatekeepers whose primary motivation was to ration access in order to maximize their profits.

Conscious that they had lost the argument, publishers began to make concessions. Shortly before the U.K. report was published, Reed Elsevier announced a change of policy on self-archiving, stating that researchers were now free to self-archive their post-prints (although not the final PDF).

Throughout the summer a string of further concessions followed (of both gold and green varieties). In June OUP announced that, beginning in January 2005, its highly regarded *Nucleic Acids Research* will be fully open access. In August came news that starting next January, Reed Elsevier's Cell Press will make its recent online archives of journals —including *Cell*, *Neuron*, and *Immunity*—freely available. And in early September, Nature Publishing Group announced it was partnering with the European Molecular Biology Organization to launch its first open access journal. Since few doubted that many, if not all, of these statements were primarily PR-driven, however, they were greeted with skepticism. When the Select Committee Report was published, it noted that OA advocates had denounced Elsevier's move as a "cynical piece of public relations" and added: "The Committee itself found that the timing of the announcement, approximately 1 month before the publication of this report, was unlikely to be coincidental."

No doubt it was for this reason that the committee chose not to rely on the goodwill of publishers, but to recommend that the U.K. government make self-archiving mandatory.

Indeed, Reed Elsevier CEO Crispin Davis' reaction to the report confirmed suspicions that Elsevier's gesture had been a hollow one, made in the knowledge that few researchers would voluntarily self-archive their papers. On Aug. 6, *The Guardian* reported Davis as saying: "To expect 250 academic institutions in the U.K. [to create their own archives] is daft. Frankly, the vast majority do not want to and the vast majority of authors do not want to."

Although Springer did not provide evidence to the U.K. inquiry, it too saw the need to act, and in July it announced Open Choice. This enables researchers wishing to have their papers made freely available on the Web to pay a $3,000 publication fee. "In effect," the Springer press release explained, "they can continue to publish in the traditional fashion, or they can pay $3,000 to have their article published."

Like Elsevier's announcement, Open Choice attracted considerable suspicion. Critics pointed out that authors still have to assign copyright to Springer and concluded that the price was set at a level designed to dissuade rather than encourage authors to embrace OA. "Three thousand dollars per article is horrendous," says Hilf. "My hunch is that either Springer wants to demonstrate no one will choose that price, and thus the whole idea of OA is bad, or they are too timid, which I doubt."

When I spoke to Haank (now CEO of Springer) in August, he strongly denied that Open Choice is a stunt, insisting that it is a signal that Springer is willing to do things differently. "What we are saying is: 'Look. It's not that we don't want to change on principle; we've been advocating the traditional model simply because we thought it was practical. But if you want to try open access, and you can really organize yourselves in a different way, and the money starts to come out of a different pot, we are happy to change our internal procedures to accommodate you.'"

He undermined this, however, by adding that Springer's own research revealed few researchers want OA. "More than 50 percent of authors haven't got a clue what open access is," he said. "The half that does know generally says, 'Over my dead body. I am not going to pay for other people to look at it.'"

In short, both Elsevier and Springer had made offers that they believed few would take up.

But however cynically motivated, some OA enthusiasts nevertheless welcomed the moves, arguing it demonstrated that commercial publishers now accepted that change was inevitable. Commenting on Open Choice, for instance, Wellcome Trust senior policy advisor Robert Terry says: "Whether the appropriate fee for author-pays should be $1,000 or $3,000 is not yet clear, but Springer's decision will at least help to introduce proper competition and openness in a market which previously has been completely closed."

Socialized Science

Learned societies, by contrast, have proved far more active opponents of OA. In the U.K., the emphasis has been on attacking the author-pays model of OA publishing. In March, for instance, The Royal Society warned that it "could impact significantly on the levels of funding required by U.K. scientists, with the potential to reduce the number of research grants awarded."

In the U.S., meanwhile, societies were seeking to differentiate themselves from commercial publishers. In March, 48 nonprofit publishers issued the Washington DC Principles for Free Access to Science. Arguing that proponents of open access had tarred scholarly publishers with the same brush as commercial publishers, they asserted the Principles as "the needed 'middle ground' in the increasingly heated debate between those who advocate immediate unfettered online access to medical and scientific research findings and advocates of the current journal publishing system."

In a seven-point plan that included a commitment to journals being made freely available online "to everyone worldwide either immediately or within months of publication," the signatories sought to paint themselves as the good guys of STM publishing.

When the NIH proposal came to light, however, they immediately embarked on an aggressive campaign of resistance. In September, for instance, 55 societies wrote to the chairman of the Senate Committee on Appropriations complaining that societies had not been consulted over the plan "until after the fact" and that a "government-run mandatory distribution system" for scientific research articles would threaten their survival.

The implication that the plan would lead to a state monopoly was quickly seized on by other nonprofits, reaching its apotheosis on Sept. 20, when the editor in chief of the American Chemical Society's C&EN, Rudy Baum, penned an editorial denouncing OA as "socialized science."

With the apparent intention of raising the specter of socialism, and portraying OA as some kind of un-American deviation designed to create government monopolies on the back of broken enterprises, Baum claimed that the "unspoken crusade" of the OA movement "is to socialize all aspects of science, putting the federal government in charge of funding science, communicating science, and maintaining the archive of scientific knowledge." The good guys of STM publishing, it seemed, had turned nasty.

Of course the harsh reality is that societies are threatened by OA (the gold version, at least), a threat the U.K. Select Committee acknowledged in its report, saying, "It is of concern to us that learned societies could stand to lose a substantial portion of their income in a move to the author-pays publishing model."

It was mainly for this reason that the committee deliberately refrained from endorsing OA publishing, choosing instead to recommend the green road of self-archiving. Moreover, as OA advocates have been keen to stress, the NIH plan also proposes a green (not gold) approach to OA—indeed, if it comes into force societies will have to accept little more than they have already voluntarily committed to in the DC Principles!

Green as in Catalyst

In a world of government mandates, commercial publishers and societies would have little choice but to embrace the openness of the Web—the very thing they turned their back on in the 1990s. However, it seems most plan to resist as long as possible.

But should we view self-archiving as a long-term solution or a short-term stopgap to allow an orderly migration to OA publishing? "Self-archiving is *part* of a long-term solution," replies U.K. Select Committee chairman Ian Gibson, adding: "It is workable in the long term itself, but I see it as a catalyst to a more dramatic change."

Some, however, have serious doubts about self-archiving, both in the long and the short term. In the short term, says Terry, it could "undermine the commercial model." In the long term, he adds, it is simply not viable. "That is why although converting everybody to OA journals with an author-pays model is a much more difficult road to travel, it is more sustainable."

The weakness of Harnadian self-archiving, of course, is that it is parasitic on traditional journals, since it assumes that authors will continue to rely on them for peer review. And while recent publisher concessions mean that around 92 percent of journals now permit self-archiving, it is clear that they could withdraw permission at their whim since publishers routinely take copyright.

Moreover, while in theory this problem goes away if governments and other funders mandate OA, publishers might simply exit the market if self-archiving was felt to be a serious threat to their commercial interests. "What would concern us is if there were any dramatic and sudden changes causing a disruption to the scientific record," says Terry. "If, for instance, commercial publishers decided overnight that they were going to withdraw because it no longer seemed commercially viable and there were no alternatives in place."

Harnad dismisses such qualms as "speculation about hypothetical future contingencies." Harnad, however, was once the most articulate exponent of the doomsday scenario. In 1998, for instance, he warned of a possible "catastrophic instability or risk to the learned corpus" since "de facto free use will simply subvert the present system with no escape route in place to a new stable system, and a possibly chaotic inter-regnum, to the detriment of us all."

Today Harnad dismisses such worries as irrelevant, saying: "I plead guilty to having made that free-floating, arbitrary speculation at an earlier and more naive time, and regret it." Davis, however, is quite happy to speculate, and he doesn't like what he sees in his crystal ball. Writing in Reed Elsevier's in-house newsletter in June, he warned that making published content freely available on the Internet could "jeopardize the stable, scalable, and affordable system of publishing that currently exists."

Think Football

Nevertheless, self-archiving is gaining allies in some surprising quarters. President of Blackwell Publishing Bob Campbell, for instance, has come to believe that not only is it acceptable, but it could benefit publishers.

First, he says, it could deflect criticism. "The NIH is saying that authors it has sponsored have to make available a version of the accepted manuscript in PubMed Central in 6 months. PubMed Central and other open archives are easily accessible over the Web. As such the proposal would enable publishers to answer critics who argue that the taxpayer should be entitled to read what they have paid for."

Secondly, Campbell adds, self-archiving may drive traffic toward publishers' versions of articles, thereby increasing, not decreasing, access to their services. "If you look at some of the studies done by Stevan Harnad and colleagues, you'll see the so-called citation boosting effect," he explains, adding that this provides "increasing evidence that self- or open archiving provides an added promotional effect for the official version."

Thus while such studies have been widely used by OA enthusiasts to support claims that making an article open access benefits the author by increasing citations, Campbell thinks publishers could benefit too. "The important point," he says, "is that only the official published version will have all the added functionality—for example a CrossRef link and a Digital Object Identifier (DOI). So people will refer in their papers to the publisher's version, rather than to the open-archived versions. The analogy here is football: Football is widely seen on television, and yet it is more difficult to get to see Manchester United play now than it ever was before."

Other publishers remain skeptical. For this reason they are anxious to control how researchers post their papers. Explaining to me in August that Springer's policy on self-archiving is the same as Elsevier's, for instance, Haank said: "We don't want someone establishing links in such a way as to bring together the entire article list and effectively replicate the original journal for instance. If we allowed that, there would be no need to subscribe to our journal anymore!"

Here lies a conundrum for self-archiving enthusiasts: To make sense, self-archiving needs effective search and discovery tools. That, after all, was why OAI common metadata-tagging standards were created, and that is why cross-repository harvesters like OAIster were developed. But as these tools improve, and as companies like Google and Yahoo! take an increasing interest in making institutional repositories visible to their search engines, the closer self-archiving approaches the point at which it becomes a serious threat to publishers.

As Harnad concedes, "It is likely that once a free, online version of the refereed research literature is available, not only those researchers who could not access it at all before, because of toll-barriers at their institution, but virtually all researchers will prefer to use the free online versions." At that point, presumably, even Bob Campbell would balk.

And it is for this reason that most publishers so dislike PubMed Central. As a central repository boasting a sophisticated search platform, it poses a much greater threat than a network of institutional repositories. As PLoS' Helen Doyle and Andy Gass pointed out on the gpgNet mailing list in October, the problem with PubMed Central for publishers is that "it is a little bit too useful."

Go for Gold

What this tells us, then, is that self-archiving is an inherently fragile strategy. Nevertheless, if it can facilitate a smooth transition to OA publishing without causing a "chaotic inter-regnum," it will surely have served a useful purpose. The question then becomes: Can the gold road deliver OA? Above all, can it come up with a viable business model?

To date neither BMC nor PLoS has demonstrated an ability to break even, let alone build a sustainable model for the future. Nor is it clear that they can. "If you look at the average number of articles published by a BMC journal, it is around 10, compared to an average of 100 in a normal journal," comments one publisher, on condition of anonymity. "Some BMC journals have even decreased the number of articles they publish, with a few now just publishing two or three articles. With the subscription model these would be culled. Meanwhile PLoS, which charges $1,500, is only just managing to launch its second title, and is surely losing money on its first."

In fact, of the 1,200 or so OA journals today, only a small minority even aspire to financial independence by charging authors to publish. "Some, of course, have explicit grants from third parties and/or from their own institutions," explained Sally Morris, CEO of The Association of Learned and Professional Society Publishers, on the liblicense mailing list recently. "Many more, however, I would guess, are 'invisibly' supported by their institutions."

OA journals, it seems, are as parasitic as self-archiving. Maybe, then, Haank's $3,000 author-pays fee is not "horrendous" but simply realistic, and OA publishers need to raise their prices. Campbell, however, cautions against this, pointing out that The Company of Biologists discovered that "once the charge was raised to £1,350, interest cooled."

Maybe Campbell is right. Indeed, author-pays will probably never work. But if governments and funders truly want OA (which they surely do) then a market inevitably exists, and it is simply a matter of finding an acceptable alternative funding mechanism. For this reason, OA publishers have introduced membership fees—designed to enable institutions to pay an annual charge instead of having their researchers billed for every paper they publish. A fee, it should be noted, that is usually paid by the library.

What we discover, however, is that membership fees have an uncanny resemblance to the big deal. When, for instance, Cornell University librarian Phil Davis analyzed the impact of membership fees at Cornell, he concluded that there was little to choose between OA and the subscriber-pays publishing model. "[W]e can reduce the BMC model to a commercial subscription model where the institution pays all costs and the PLoS model as a kind of society-publishing model where there is a mix of subscriptions and author page charges," he explains. "Reduced to these terms, we appear to be back where we started with traditional publishing."

What this teaches us, however, is that we fund OA; we do not remove the costs from the system. We also learn that these costs invariably end up back on the desk of the librarian.

Here then is the rub for librarians: Whatever the eventual outcome of the current proposals in the U.K. and the U.S., OA is surely inevitable; but while it promises to resolve researchers' access problems, it is far from clear that OA will reduce library costs.

Indeed, libraries are finding that they have to not only continue paying traditional journal subscriptions, but they have to pay OA membership fees too. And to cap it all off, many are also being asked to create institutional repositories—a process costing anywhere from $7,000 to $2.5 million in setup fees and at least $40,000 a year in running costs.

As if that were not enough, self-archiving advocates have little sympathy for librarians' plight: For Harnad it is enough that research becomes openly available. As he now frequently explains, the library journal affordability problem is not the same as the journal article access problem. "They are not the same problem, even though the first helped draw our attention to the second. Nor do they have the same solution."

What, then, is the solution to the journal affordability problem? We don't know. What we do know is that, although the merits of OA are indisputable, it looks certain (in the short term at least) to increase, not decrease, library costs. The tragedy for librarians is that while they have done so much to promote OA, their reward has been only further financial pain. No gain without pain, they say. In this case, researchers gain; libraries feel the pain!

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